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A Case of Rapid and Almost Total Loss of Hearing in a Child, Seven Years of Age.

(Presented to The American Otological Society, July 19, 1887.)

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A Case of Rapid and Almost Total Loss of Hearing in a Child, Seven Years of Age; Inherited Syphilis Apparently the Cause; Marked Improvement Following the Use of the Iodide of Potassium.

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A CASE OF RAPID AND ALMOST TOTAL LOSS OF HEARING IN A CHILD, SEVEN YEARS OF AGE; INHERITED SYPHILIS APPARENTLY THE CAUSE; MARKED IMPROVEMENT FOLLOWING THE USE OF THE IODIDE OF POTASSIUM.

By ALBERT H. BUCK, M. D., *New York, N. Y.*

A child, seven years of age, and of somewhat delicate appearance, was brought to me by his parents on January 11th, 1887, for the relief of pronounced deafness. The history given by them was, in brief, as follows:

About three weeks previously the child had what seemed to be an attack of croup, which lasted four or five days, and was followed by impaired hearing. The deafness rapidly became so marked that it was almost impossible to communicate with him by speech. Previously to the present attack the child, it was said, had never shown any signs of impaired hearing, although on cross examination the parents admitted that they had sometimes observed a certain degree of inattention on his part, yet not sufficient to make them suspect impairment of the hearing power.

Inflations of the middle ears according to Politzer's method were resorted to promptly by the physician in attendance, and were continued, at regular intervals, up to the time when I saw the case—that is, for a period of about two weeks. Noticeable improvement in the hearing, lasting for a few minutes, or for an hour or two, followed these inflations. In the main, however, the hearing power diminished rather than increased, during this period.

At the time when I first saw the child there seemed to be, for all practical purposes, total deafness. From the statements made by the parents, and also from my own observations, I became satisfied that there were brief intervals of time during which the hearing was sufficiently acute for the child to distinguish correctly at least some of the words that were spoken loudly into one or the other ear. A careful inquiry into the previous history revealed nothing that might throw light on the nature of the aural affection. There had been no complaint of pain, no staggering or uncertain gait, no paralysis. On examination, both drum membranes were found to present a somewhat dull and sunken appearance. The dull appearance was of such a nature as to suggest the presence of mucus in the drum cavities. However, when air was forced into them by aid of the Eustachian catheter, the sound conveyed to my ear through an auscultation tube was that of air entering freely a tympanum of undiminished size and free from the presence of fluid. This satisfied me that the dullness observed was due, not to the presence of mucus, but rather to an œdematous condition of the mucous membrane on the reverse side of the membrana tympani. The hearing seemed to be impaired to an equal degree in both ears. There were ample evidences of nasal and naso-pharyngeal catarrh.

In the matter of a diagnosis I was obliged to confess that both the nature and the precise seat of the disease were unknown to me. The rapidity with which the hearing had disappeared, and the apparent absence of physical changes in the middle ears adequate to explain the deafness, favored the hypothesis of lesions involving the labyrinth; while, on the other hand, the development of the deafness in connection with a croupy attack, the existence of decided catarrhal manifestations in and about the ear, and the temporary improvement brought about by inflations of

the drum cavities, favored rather the idea that the affection was, after all, simply a subacute catarrhal inflammation of the middle ears with an unusual degree of secondary labyrinthine congestion. At that time there were no visible lesions in the external auditory canals; or, if they were present, they were so insignificant as to escape my notice.

Under these circumstances I gave a guarded prognosis, and recommended a plan of treatment based on the supposition that the disease was simply catarrhal in its nature.

On January 26th, I noticed, for the first time, the existence of a circumscribed area of redness (localized periosteitis) on the posterior and upper wall of the right external auditory canal, in close proximity to the membrana tympani. The redness of the skin did not extend perceptibly beyond the periphery of the latter membrane. An examination of the left ear showed that almost precisely the same condition of the parts existed in that ear; the only difference being that the redness was somewhat less pronounced on one side than on the other. In the absence of pain, of fever, and of any other sign of an ordinary inflammation, and from the fact that the family history was not entirely free from a tubercular taint, I drew the inference that the case in hand was one of tubercular osteitis involving the bony floor of the antrum, and extending inward and forward as far as to the fenestra ovalis and probably into the labyrinth itself. With this new light on the case I suggested to the attending physician that in addition to the inflations and tri-weekly applications of silver nitrate to the vault of the pharynx, cod-liver oil and Huxham's tincture of cinchona should be administered internally, and a modified Wilde's incision* made behind the right ear. It was hoped that, by the aid of the decided counter-irritation which would be established by this last

*Incision of the mastoid integuments, followed by stuffing of the wound with lint or other irritating material.

measure, the inflammation of the bone might be made to subside.

February 10th. The incision was made as suggested, but the localized periosteitis still persists, and, so far as the eye can discover, it has not materially diminished in degree. The external wound has healed. There is a slight improvement in the hearing, according to the statement of the parents, but it is not recognizable by the physician.

February 15. Incision repeated, on the same side, and wound stuffed with coarse oakum, with a view to exciting more decided counter-irritation than before.

February 21. Very little inflammatory reaction has followed both this and the first incision, and no recognizable benefit has resulted from the procedure.

By the merest accident I learned to-day, from a person who had been acquainted with the child's parents in earlier years, that both of them had had syphilis before the birth of the child. I made careful inquiries in regard to the ailments and general condition of health of the patient prior to the attack of "croup", but failed to obtain any satisfactory information. From the attending physician, however, I learned that the patient was a pale, delicate babe. He had no serious illness during the first year. When a little over a year old he began to have attacks of vomiting, and at varying intervals they would recur. They began by his emptying his stomach and then he would retch and throw up whatever he took, for three days. They got to expect a three days' siege whenever an attack began. There was no system or regularity about their return. There were no head symptoms nor anything simulating a convulsion. The mother has had one miscarriage and has lost two or three children at an early age. An examination of the child's incisor teeth (not yet the permanent ones) shows no evidences of the characteristic defects described by Hutchinson.

Again the treatment was changed. All attempts at counter-irritation were abandoned, no further applications of silver nitrate were made to the vault of the pharynx, — which, in fact, seemed then to be in so nearly a normal condition as not to require any further active interference, — and the child was put under a regular course of potassic iodide, in slowly increasing doses. It was also suggested that mercurial inunctions should be added, later, to the internal administration of the iodide. My impression is that this part of the treatment was not adopted.

On the 27th of March the attending physician reported that the child was improving, both in his general health and in his hearing power. The iodide of potassium had been given, at first, in five-grain doses, three times a day, but it had been gradually increased, and at that date, the dose had reached seventeen grains, three times a day. The cod-liver oil and compound tincture of cinchona had also been continued. "There is no change," his physician writes, "in the appearance of the external auditory canal that I can discover. The remedy has not yet shown its effect on the skin or in any other way; but the child hears better. Of this I am positive."

I quote again from a letter dated June 11th: "He has taken the iodide regularly since I wrote you last, and is improving quite steadily in respect to his hearing. He took at one time thirty-eight grains, three times a day, but it caused some coryza and he has taken less since. I have not seen him, until to-day, for nearly six weeks. Meantime he has developed a trouble with the left eye, the nature of which I do not understand [? keratitis parenchymatosa]. The chief symptoms are photophobia and watering of the eye. His parents have during this time taken the responsibility of reducing his iodide to seven and a half grains three times a day. I have directed them to increase it again. The child's general health is good. He is growing but not increasing in weight."

In answer to my request for more detailed information in regard to the condition of the hearing, the doctor writes, under date of June 18th: "He hears equally well, as nearly as I can ascertain, with both ears. He would not hear an *ordinary* tone to know what was said. He would hear a tone *slightly* elevated, if the words were spoken slowly and distinctly. His parents think he hears ordinary conversation at times." Again, on the 12th of July, he writes "that one of the child's knees has been in a swollen condition since ten days ago. There has been no pain, however, nor does it hurt him to use it."

Remarks. It seems to me that there can be very little doubt in regard to the syphilitic nature of the lesions which damaged this child's hearing so seriously. The miscarriage experienced by the mother, the loss of two or three of her children in infancy, the selection of the bony parts of the ear by the disease for its first centre of activity, the subsequent development of inflammation of the eye, and then of some sluggish disease of the knee, and, finally, the markedly beneficial effects of potassic iodide administered internally,—all these facts, I believe, favor strongly the idea that the case was one of tardily developed inherited syphilis.

A number of similar cases have been reported by Knapp, of New York (Vol. IX. of the Archives of Otology, where the earlier literature of the subject may be found), by Kipp, of Newark, N. J. (Vol. II. of the Transactions of the American Otological Society), and by others. The chief point of interest in the present case lies in the fact that a circumscribed periosteitis was demonstrable, for a comparatively long period, at symmetrically placed spots in both external auditory canals. These spots corresponded to the bony floors of the mastoid antra. In all other material respects the case differed but little from those hitherto reported.

The discovery of a limited periosteitis (and undoubtedly also osteitis) at the very spot where tubercular disease of the ear is apt to start, suggests the question whether, in cases of deafness due to tardily developed inherited syphilis, this spot, or one very close at hand, be not also a favorite seat of syphilitic lesions.

In view of this possibility I would suggest that particular attention be directed, in cases such as we are considering, to that part of the external auditory canal which lies immediately next to the posterior upper limit of the membrana tympani. I am confident that even a careful observer may, in an unguarded moment, very easily overlook a certain amount of redness of the skin at this point because it is not unusual to find very nearly the same state of things in cases of simple subacute catarrhal inflammation of the middle ear. The distinction between the two, however, may be stated thus: The redness of syphilitic origin is most marked at a spot lying directly upon bone substance, while that due to simple catarrh is most marked along the manubrium mallei and at the periphery of the membrane, and then fades away rapidly from the periphery outward.

While, in the present instance, the administration of the potassic iodide alone, without mercury, appears to have been reasonably successful, I find that a recent writer on this subject* lays considerable stress on the necessity of not trusting to this drug alone, but of employing at the same time, in conjunction with it, mercurial inunctions.

*A. Wolff: *Ueber Syphilis hereditaria tarda.* Volkmann's Sammlung Klinischer Vorträge, No. 273.

NOTE. Sept. 13, 1887. The physician in attendance informs me by letter that the boy now hears almost as well as ever.